

REMARKS/ARGUMENTS

The specification has been conformed to correspond to the preferred format for U.S. patent applications as required in the Office Action, and a Substitute Specification and Comparison Copy are submitted herewith.

Claims 1-39 are presently pending in this application.

All claims were provisionally rejected for obviousness-type double patenting over applications Nos. 10/054,516 and 10/054,116. Applicant will file appropriate terminal disclaimers once allowable claims have been identified in more than one of these applications.

All claims were further rejected for obviousness over Baskins (4,549,080), Shu-Ti Lee (4,684,805) and Bragg (4,749,276).

The rejection is based on the observation that Baskins shows a gas permeable probe with an elongate hollow structure, a mounting structure and an optical window reflector, although it does not include as part thereof a bellows. Shu-Ti Lee was cited for disclosing a bellows, and Bragg was cited for describing the use of a bellows without, however, showing it in the drawings. The obviousness rejection over these references was supported by the observation that it "would have been obvious to provide such a bellows in an instrument such as shown by Baskins to achieve the sort of adjustability taught by the references".

Baskins discloses a gas permeable probe which has a stainless tube 16 and, at the end thereof, a housing 17 with axially extending fingers 20 that surround a hollow ceramic cylinder 18. Tube 16 and housing 17 are threaded or otherwise secured to each other (col. 6, lines 8-19). As a result, the probe of Baskins in effect has a fixed length.

Shu-Ti Lee discloses a device for making spectroscopic measurements of stable isotopes and states that to make such measurements it is necessary to provide a variable optical path length. For this, Shu-Ti Lee places a bellows 38 between the ends of a chamber 34. A micrometer adjustment 42 permits one to make precise longitudinal adjustments to the length of chamber 34.

While Baskins discloses a gas permeable probe of a fixed length, and nowhere mentions that changing the length of the tube is desirable or permissible, Shu-Ti Lee discloses a device which requires length adjustments.

One of ordinary skill in the art would not combine Baskins with Shu-Ti Lee by adding the bellows of Shu-Ti Lee to the probe of Baskins because the bellows would serve no useful purpose. Indeed, a bellows would defeat Baskins' need for a probe that has a fixed length optical path.

Independent claim 1 is limited amongst others to a probe "with an optical cavity of a fixed length defined between said first and second ends within said side wall"

Similarly, independent claim 32 is limited to a probe "with an optical cavity between said first and second ends within said side wall defining an optical path between the first and second ends having a fixed length"

Neither Baskins nor Shu-Ti Lee or, for that matter, Bragg, which merely states that "mirror adjustment 72 may also be joined with a flexible coupling such as a bellows, not shown, if desired" (col. 5, lines 16-18), teach or in any form suggest a gas permeable probe with an optical cavity of a fixed length, or defining an optical path of a fixed length, which includes a bellows. It would at best be an exercise in futility to add the bellows of Shu-Ti Lee to the probe of Baskins because, in order for this combination to suggest the present invention as defined by independent claims 1 and 32, the longitudinal adjustability provided by the bellows would have to be eliminated, for example by incorporating a fixed length member in the structure of the bellows which prevents length changes in the bellows and therewith in the optical path or the cavity. Since there is no utility whatsoever in combining the two references for purposes of constructing a probe with a fixed optical path length, there is no motivation for one of ordinary skill in the art to combine them. But even if the two references were combined, they would not lead to the present invention as defined by claims 1 and 32 because in such an event the fixed optical path or cavity length would be lost unless the person further modifies the bellows by preventing it from permitting longitudinal changes in the length of the cavity or optical path.

Accordingly, applicant submits that Baskins in combination with Shu-Ti Lee and/or Bragg does not suggest to construct a gas permeable probe with a fixed optical path or cavity length that includes a bellows.

Applicant includes the bellows for a specific purpose, namely:

Because the connecting structure is usually made of metal, such as stainless steel, whereas the filter structure consists of a different material, for example either a ceramic structure or a sintered metal, the operation of the device at different temperatures within a wide temperature range means that differential thermal expansion has to be considered and the bellows disposed between one of said first and second ends of said elongate hollow structure and said filter structure permits differential thermal expansion to occur without placing unnecessary stress on any of the components. (page 5 of the application as originally filed, lines 16-24)

The prior art contains no suggestion to incorporate a bellows in a gas permeable probe for purposes of compensating for or neutralizing different thermal expansions of the components of the probe. Accordingly, applicant submits that independent claims 1 and 32, and therewith claims 2-31 and 33-39 which depend from them, are not obvious over the cited references.

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PATENT

CONCLUSION

All claims are therefore in condition for allowance, and formal notification to that effect at an early date is requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 415-576-0200.

Respectfully submitted,



J. Georg Seka
Reg. No. 24,491

TOWNSEND and TOWNSEND and CREW LLP
Two Embarcadero Center, 8th Floor
San Francisco, California 94111-3834
Tel: (415) 576-0200
Fax: (415) 576-0300
JGS:jhw
60209106 v1